ISSN: 2581 – 3633
PubMed - National Library of Medicine - ID: 101745081

International Journal of Medical Science and Advanced Clinical Research (IJMACR)

Available Online at:www.ijmacr.com

Volume – 6, Issue – 1, February - 2023, Page No. : 150 - 154

A Socio-Demographic Profile of Breath Holding Spells in Children.

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How to citation this article: Muskan Nargotra, Saishte Mahajan, Ravinder K. Gupta, "A Socio-Demographic Profile of Breath Holding Spells in Children", IJMACR- February - 2023, Volume – 6, Issue - 1, P. No. 150 – 154.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Objective: To study the socio-demographic profile of breath holding spells (BHS) in children.

Design and Setting: Prospective cross-sectional study conducted at private medical college.

Method: All patients of breath holding spells attending outdoor wing of Department of Pediatrics Acharya Shri Chander College of Medical Sciences (ASCOMS), Jammu from May 2019 to April 2020 constituted the study group. A structured interview was under taken at the time of initial consultation to confirm BHS and its type, associated phenomenon, family history, sex, age, family size and type, various triggering factors for initiation of spells.

All the patients were reviewed to look for presence of tonic clonic movements with the spell, any previous EEG records, progression of the illness and any other relevant history. All the children were evaluated for iron deficiency anemia and adequately treated. The parents were asked regarding previous consultation for this event and various treatment modalities. All the patients were followed for at least six months. Health education was imparted.

Results: About 60 children were enrolled for the study. The age ranged from 4-36 months with mean age of 11.8 months. In 70% children, BHS began during first 12 months. The males outnumbered females (M: F = 4:1). About 70% children belong to joint families. Pain (due to fall and some injection), anger and scolding by parents constituted various triggering factors for initiation of BHS.

The BHS were seen more frequently in first born. The spells were cyanotic (60%), pallid (28.3%), and mixed (11.7%) type. About 40(66%) children had consulted one or more health professionals before attending the outdoor wing and 28 had undergone EEG. 12 children were on anticonvulsant. EEG was done more commonly in those with onset in infancy, with family history of seizures, attending unqualified health professionals, having associated tonic-clonic movements and having mixed type of BHS.

Conclusions: BHS are seen mostly Cyanotic. Majority of primary health professionals continue to requisition EEGs in the diagnostic work up of BHS. There is need to educate the health professionals regarding the futility of EEG in the management of BHS.

Keyword: Pediatrics, adequately, triggering

Introduction

Breath holding spells are reflex events which are usually initiated by provocation that can cause anger, frustration or pain making the child cry. This crying stops at full expiration and the child becomes apneic [1]. These spells are also described as paroxysmal nonepileptic events. These are common in children and have been recognized since the days of Hippocrates [2,3,4].

BHS are said to occur due to acute cerebral hypoxia and the child is seen to recover spontaneously [5]. BHS have also been associated with Iron deficiency anemia [6]. About 5% of otherwise healthy children suffer from breath holding spells and majority of these children develop them before 2 years of age [7].

There are 2 forms of breath holding spells

Cyanotic form

This is the most common form and often occurs as a part of temper tantrum or after a scolding/upsetting event. The child turns blue during this type of spell.

Pallid form

This form is often seen after a painful experience such as falling or frightening events. The child appears pale rather than blue during this type of spell. [8]

The duration of unconsciousness is usually no more than a few seconds. The severity of the cyanosis, unconsciousness, and convulsive movements, vary with the duration of the apnea and the individual child. The total duration of each of the various stages is usually only 5 seconds or less, and rarely lasts more than 10 to 15 seconds [9]. Although breath-holding spells are benign, they can be quite distressing to the parents.

Aim

To study the socio-demographic profile of breath holding spells (BHS) in children.

Materials and method

A Prospective cross-sectional study was conducted in the outpatient wing of Department of Pediatrics, ASCOMS and Hospital, for a period of 12 months (May 2019 to April 2020).

Children aged between 4-36 months who presented with BHS in the OPD were enrolled for the study. The study was conducted after getting approval from the Institute of Independent Ethical Committee wide reference number ----- dated -----. An informed consent was obtained from the parents of all children who enrolled for the study.

A total of 60 children participated in the study. A structured interview was under taken at the time of initial consultation to confirm BHS and its type, associated phenomenon, family history, sex, age, family size and type, various triggering factors for initiation of spells. All the children were evaluated for iron deficiency anemia and adequately treated. The parents were asked regarding previous consultation for this

event and various treatment modalities. All the patients were followed for at least six months. Health education was imparted.

Results

The study included 60 subjects which were analysed for further evaluation. Mean age of participants in the study was 11.8 months. BHS began during the first 12 months in 70% of the children. In our study, 80% (48) children were males whereas only 20% (12) subjects were females. The Male: Female ratio was 4:1.

Table 1: (n=number of patients)

AGE (months)	Male's n (%)	Female's n (%)
4-12	36(75)	6(50)
12-20	7(14.5)	3(25)
20-28	3(6.25)	2(16.6)
28-36	2(4.1)	1(8.3)
Total	48	12

It was observed that about 70% of the children who presented with BHS belonged to joint families whereas only 19 children lived in nuclear families.

Table 2: (n=number of patients)

Type of family	n (%)
Joint family	41(68.3)
Nuclear family	19(31.6)
Total	60

Pain (due to fall and some injection), anger and scolding by parents constituted important triggering factors for initiation of BHS. Also, BHS were seen more frequently in first born children as about 65% of the subjects in this study group were first born.

Table 3: (n = number of patients)

Order of birth	n (%)
First born	38(63.3)
Second born	14(23.3)
Third born	8(13.3)
Total	60

Out of 60 subjects, majority presented with Cyanotic type of BHS (60% 0f patients). Pallid type of BHS were seen in (28.3%) of subjects whereas only 11.7% presented with mixed type of BHS.

Table 4: (n = number of patients)

Type of bhs	n (%)
Cyanotic	36(60)
Pallid	17(28.3)
Mixed	7(11.7)
Total	60

It was observed about 40(66%) children had consulted one or more healthcare professionals before attending the outpatient wing.

Table 5: (n = number of patients)

	n (%)
Children with previous consultation	40(66.6)
Children without previous consultation	20(33.3)
Total	60

In our study, 28 subjects had undergone EEG and 12 children were on anticonvulsant. EEG was done more commonly in those with onset in infancy, with family history of seizures, attending unqualified health

professionals, having associated tonic-clonic movements and having mixed type of BHS.

Discussion

The pathophysiologic mechanism of BHS remains controversial and no study had identified the exact etiology of the attacks [10,11]. In our study, the mean age of onset of BHS was 11.8 months, which is not far from other studies which stated that most cases of BHS are manifested before the first birthday [12,13,14]. In this study, the males outnumbered females (M: F = 4:1). There are similar reports where children with BHS were predominantly males [15,16].

Our study has demonstrated that about 70% children who present with BHS belong to joint families. Pain (due to fall and some injection), anger and scolding by parents constituted various triggering factors for initiation of BHS. About 65% of patients with BHS were seen to be first born children [9,17,18].

Breath-holding spells may be classified as cyanotic or pallid, based on the coloration of the child's face (lips) during the event. Cyanotic breath-holding spells are by far the more common type, accounting for approximately 60% of cases in our study. These results are comparable to the observations made by other authors [19].

It was observed, about 40(66%) children had consulted one or more healthcare professionals before attending the outpatient wing. 28 subjects had undergone EEG and 12 children were on anticonvulsant.

Conclusion

BHS are seen mostly Cyanotic with male predominance. Majority of primary health professionals continue to requisition EEGs in the diagnostic work up of BHS. There is need to educate the health professionals regarding the futility of EEG in the management of BHS.

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